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(21) International Application Number: PCT/US98/02403 (22) International Filing Date: 11 February 1998 (11.02.98)		(74) Agent: BRUESS, Steven, C.; Merchant, Gould, Smith, Edell, Welter & Schmidt, P.A., 3100 Norwest Center, 90 South Seventh Street, Minneapolis, MN 55402-4131 (US).	
(30) Priority Data: 08/798,596 11 February 1997 (11.02.97) US		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).	
(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application US 08/798,596 (CIP) Filed on 11 February 1997 (11.02.97)		(71) Applicant (for all designated States except US): E. HELLER & COMPANY [US/US]; Suite 1000, 1311 Harbor Bay Parkway, Alameda, CA 94502 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): HELLER, Adam [US/US]; 5317 Valburn Circle, Austin, TX 78731 (US). KENAUSSIS, Gregg, L. [US/US]; 2504F Leon Street, Austin, TX 78705 (US). CHEN, Qiang [CN/US]; Apartment 141, 5106 North Lamar, Austin, TX 78751 (US). VREEKE, Mark, S. [US/US]; 2826 Calhoun Street, Alameda, CA 94501 (US).	
(54) Title: ELECTROCHEMICAL ANALYTE SENSORS USING THERMOSTABLE SOYBEAN PEROXIDASE (57) Abstract		<p>Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 17 September 1998 (17.09.98)</p>	

(54) Title: ELECTROCHEMICAL ANALYTE SENSORS USING THERMOSTABLE SOYBEAN PEROXIDASE

(57) Abstract

A sensor for the detection and measurement of an analyte in a biofluid. The sensor includes two enzymes. One type of sensor measures the concentration of hydrogen peroxide using a thermostable peroxidase enzyme that is immobilized in a redox hydrogel to form a sensing layer on a working electrode. This sensor also includes a hydrogen peroxide-generating second enzyme which is insulated from the redox hydrogel and electrode. This second enzyme generates hydrogen peroxide in response to the presence of an analyte or analyte-generated compound. The second enzyme may be insulated from the electrode by placement of an electrically insulating layer between the sensing layer and the second enzyme layer. Alternatively, the second enzyme is immobilized in an inorganic polymeric matrix, preferably made using a sol-gel polymerization process. Such matrices include those made of silica. Often, the second enzyme is stabilized by immobilization in a sol-gel. Further stabilization of polyelectrolytic enzymes can be obtained by immobilizing the enzyme with a polyelectrolytic polymer in the sol-gel matrix.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 98/02403

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G01N27/327 C1201/00

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 C12Q G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>MARCINKIEWICZ J ET AL: "BIENZYME STRIP-TYPE GLUCOSE SENSOR" BIOSENSORS & BIOELECTRONICS, vol. 8, no. 3/04, 1 January 1993, pages 209-212, XP000579124 see the whole document</p> <p>---</p> <p style="text-align: center;">-/-</p>	1, 32, 35, 38

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

Int. Application No
PCT/US 98/02403

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>Y. LIU ET AL: "Entrapment of both glucose and peroxidase in regenerated silk fibroin membrane. Characterization of the membrane structure and its application to an amperometric glucose sensor employing methylene green as an electron transfer mediator."</p> <p>FRESENIUS' JOURNAL OF ANALYTICAL CHEMISTRY, vol. 355, no. 1, May 1996, pages 78-82, XP002070473 see the whole document</p> <p>---</p>	1, 32, 35, 38
X	<p>DATABASE WPI Section Ch, Week 9638 Derwent Publications Ltd., London, GB; Class A89, AN 96-383023 XP002070475 & RU 2 049 991 C (GINDILIS A L) see abstract</p> <p>---</p>	1
X	<p>VREEKE M S ET AL: "A THERMOSTABLE HYDROGEN PEROXIDE SENSOR BASED ON "WIRING" OF SOYBEAN PEROXIDASE"</p> <p>ANALYTICAL CHEMISTRY, vol. 67, no. 23, 1 December 1995, pages 4247-4249, XP000540111 see the whole document</p> <p>---</p>	36, 37
A		1, 32, 35, 38
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P, X	<p>KENAUSIS G ET AL: "ELECTROCHEMICAL GLUCOSE AND LACTATE SENSORS BASED ON "WIRED" THERMOSTABLE SOYBEAN PEROXIDASE OPERATING CONTINUOUSLY AND STABLY AT 37 C"</p> <p>ANALYTICAL CHEMISTRY, vol. 69, no. 6, 15 March 1997, pages 1054-1060, XP000686380 see the whole document</p> <p>---</p>	1-39
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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/02403

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/02403

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